

## **RAW SEQUENCE LISTING**

**The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) no errors detected.**

Application Serial Number: 16/6007070B

Source: IFW16

Date Processed by STIC: 8-20-05

# ***ENTERED***



IFW16

## RAW SEQUENCE LISTING

DATE: 08/20/2005

PATENT APPLICATION: US/10/600,070B

TIME: 11:20:10

Input Set : A:\08153.ST25.txt

Output Set: N:\CRF4\08202005\J600070B.raw

3 <110> APPLICANT: Osteryoung, Katherine W.  
 4 Vitha, Stanislav  
 5 Koksharova, Olga A.  
 6 Gao, Hongo  
 8 <120> TITLE OF INVENTION: Plastid Division and Related Genes and Proteins, and Methods

of

9 Use  
 11 <130> FILE REFERENCE: MSU-08153  
 13 <140> CURRENT APPLICATION NUMBER: 10/600,070B  
 14 <141> CURRENT FILING DATE: 2003-06-20  
 16 <160> NUMBER OF SEQ ID NOS: 208  
 18 <170> SOFTWARE: PatentIn version 3.3  
 20 <210> SEQ ID NO: 1  
 21 <211> LENGTH: 2406  
 22 <212> TYPE: DNA  
 23 <213> ORGANISM: Arabidopsis thaliana  
 25 <400> SEQUENCE: 1

(pg. 6)

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| 28 | ccggcgacga | caaagctccg  | acgtagccac | aacacctcta  | caactatctg  | ctccgccagc  | 120  |
| 30 | aaatgggccc | accgtcttct  | ctccgacttc | aatttcacct  | ccgattcctc  | ctcctcctcc  | 180  |
| 32 | ttcgccaccg | ccaccaccac  | cgccactctc | gtctctctgc  | caccatctat  | tgatcgtccc  | 240  |
| 34 | gaacgccacg | tccccatccc  | cattgatttc | taccagggtat | taggagctca  | aacacatttc  | 300  |
| 36 | ttaaccgatg | gaatcagaag  | agcattcgaa | gctagggttt  | cgaaaccgcc  | gcaattcgggt | 360  |
| 38 | ttcagcgacg | acgctttaat  | cagccggaga | cagattcttc  | aagctgcttg  | cgaaactctg  | 420  |
| 40 | tctaactctc | ggtctagaag  | agagtacaat | gaaggtcttc  | ttgatgatga  | agaagctaca  | 480  |
| 42 | gtcatcactg | atgttccttg  | ggataaggtt | cctggggctc  | tctgtgtatt  | gcaagaaggt  | 540  |
| 44 | ggtgagactg | agatagttct  | tcgggttggt | gaggctctgc  | ttaaggagag  | gttgccctaa  | 600  |
| 46 | tcgtttaagc | aagatgtggt  | tttagttatg | gcgcttgctg  | ttctcgatgt  | ctcgagggat  | 660  |
| 48 | gctatggcat | tggatccacc  | tgattttatt | actggttatg  | agtttggtga  | ggaagctttg  | 720  |
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| 56 | gttgaggagg | gtggagcatc  | agctcttggt | gggggtttga  | cccgtgagaa  | gtttatgaat  | 960  |
| 58 | gaggcgtttt | tacgaatgac  | agctgctgag | cagggtgatc  | ttttttagc   | taccccaagc  | 1020 |
| 60 | aatattccag | cagagtcatt  | tgaagtttac | gaagttgcac  | ttgctcttgt  | ggctcaagct  | 1080 |
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| 64 | caggctaagg | taatggctat  | ggagattcct | gcgatgttgt  | atgatacacg  | gaataattgg  | 1200 |
| 66 | gagatagact | tcggtctaga  | aaggggactc | tgtgcactgc  | ttataggcaa  | agttgatgaa  | 1260 |
| 68 | tgccgtatgt | ggttgggctt  | agacagttag | gattcacaat  | atagggaatcc | agctatttgt  | 1320 |
| 70 | gagtttgttt | tggagaattc  | aaatcgtgat | gacaatgatg  | atctccctgg  | actatgcaaa  | 1380 |
| 72 | ttgttggaag | cctgggtggc  | aggggttggt | tttcctaggt  | tcagagacac  | caaagataaa  | 1440 |
| 74 | aaatttaaac | tcggggacta  | ctatgatgat | cctatgggtt  | tgagttactt  | ggaaagagtg  | 1500 |
| 76 | gaggtagttc | agggttctcc  | tttagctgct | gctgcaacta  | tggcaaggat  | tggagccgag  | 1560 |
| 78 | catgtgaaag | ctagtgtctat | gcaggcactg | cagaaagttt  | ttccttcccc  | ctatacagat  | 1620 |

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Input Set : A:\08153.ST25.txt

Output Set: N:\CRF4\08202005\J600070B.raw

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86 gaaactactg ttgaaatgtc cgttgctgat atgttaaagg aggcaagtgt gaagatccta 1860
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92 gggtcagtca gagctgacga ttcagaagca cttcccagaa tggatgctag gactgcagag 2040
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96 gaaatgttac cagaggtttt ggatgggcga atgctgaaga tttggactga cagagcagct 2160
98 gaaactgcgc agcttgggtt ggtttatgat tatacactgt tgaaactatc tgttgacagt 2220
100 gtgacagtct cagcagatgg aaccctgtct ctgggtggaag caactctgga ggagtctgct 2280
102 tgtctatctg atttggttca tccagaaaac aatgctactg atgtcagaac ctacacaaca 2340
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111 <212> TYPE: PRT
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121 20 25 30
124 Ser Thr Thr Ile Cys Ser Ala Ser Lys Trp Ala Asp Arg Leu Leu Ser
125 35 40 45
128 Asp Phe Asn Phe Thr Ser Asp Ser Ser Ser Ser Ser Phe Ala Thr Ala
129 50 55 60
132 Thr Thr Thr Ala Thr Leu Val Ser Leu Pro Pro Ser Ile Asp Arg Pro
133 65 70 75 80
136 Glu Arg His Val Pro Ile Pro Ile Asp Phe Tyr Gln Val Leu Gly Ala
137 85 90 95
140 Gln Thr His Phe Leu Thr Asp Gly Ile Arg Arg Ala Phe Glu Ala Arg
141 100 105 110
144 Val Ser Lys Pro Pro Gln Phe Gly Phe Ser Asp Asp Ala Leu Ile Ser
145 115 120 125
148 Arg Arg Gln Ile Leu Gln Ala Ala Cys Glu Thr Leu Ser Asn Pro Arg
149 130 135 140
152 Ser Arg Arg Glu Tyr Asn Glu Gly Leu Leu Asp Asp Glu Glu Ala Thr
153 145 150 155 160
156 Val Ile Thr Asp Val Pro Trp Asp Lys Val Pro Gly Ala Leu Cys Val
157 165 170 175
160 Leu Gln Glu Gly Gly Glu Thr Glu Ile Val Leu Arg Val Gly Glu Ala
161 180 185 190
164 Leu Leu Lys Glu Arg Leu Pro Lys Ser Phe Lys Gln Asp Val Val Leu
165 195 200 205
168 Val Met Ala Leu Ala Phe Leu Asp Val Ser Arg Asp Ala Met Ala Leu
169 210 215 220
172 Asp Pro Pro Asp Phe Ile Thr Gly Tyr Glu Phe Val Glu Glu Ala Leu
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184 Glu Leu Leu Gly Leu Pro Leu Gly Asp Asp Tyr Ala Ala Lys Arg Leu
185          275          280          285
188 Asn Gly Leu Ser Gly Val Arg Asn Ile Leu Trp Ser Val Gly Gly Gly
189          290          295          300
192 Gly Ala Ser Ala Leu Val Gly Gly Leu Thr Arg Glu Lys Phe Met Asn
193 305          310          315          320
196 Glu Ala Phe Leu Arg Met Thr Ala Ala Glu Gln Val Asp Leu Phe Val
197          325          330          335
200 Ala Thr Pro Ser Asn Ile Pro Ala Glu Ser Phe Glu Val Tyr Glu Val
201          340          345          350
204 Ala Leu Ala Leu Val Ala Gln Ala Phe Ile Gly Lys Lys Pro His Leu
205          355          360          365
208 Leu Gln Asp Ala Asp Lys Gln Phe Gln Gln Leu Gln Gln Ala Lys Val
209          370          375          380
212 Met Ala Met Glu Ile Pro Ala Met Leu Tyr Asp Thr Arg Asn Asn Trp
213 385          390          395          400
216 Glu Ile Asp Phe Gly Leu Glu Arg Gly Leu Cys Ala Leu Leu Ile Gly
217          405          410          415
220 Lys Val Asp Glu Cys Arg Met Trp Leu Gly Leu Asp Ser Glu Asp Ser
221          420          425          430
224 Gln Tyr Arg Asn Pro Ala Ile Val Glu Phe Val Leu Glu Asn Ser Asn
225          435          440          445
228 Arg Asp Asp Asn Asp Asp Leu Pro Gly Leu Cys Lys Leu Leu Glu Thr
229          450          455          460
232 Trp Leu Ala Gly Val Val Phe Pro Arg Phe Arg Asp Thr Lys Asp Lys
233 465          470          475          480
236 Lys Phe Lys Leu Gly Asp Tyr Tyr Asp Asp Pro Met Val Leu Ser Tyr
237          485          490          495
240 Leu Glu Arg Val Glu Val Val Gln Gly Ser Pro Leu Ala Ala Ala Ala
241          500          505          510
244 Thr Met Ala Arg Ile Gly Ala Glu His Val Lys Ala Ser Ala Met Gln
245          515          520          525
248 Ala Leu Gln Lys Val Phe Pro Ser Arg Tyr Thr Asp Arg Asn Ser Ala
249          530          535          540
252 Glu Pro Lys Asp Val Gln Glu Thr Val Phe Ser Val Asp Pro Val Gly
253 545          550          555          560
256 Asn Asn Val Gly Arg Asp Gly Glu Pro Gly Val Phe Ile Ala Glu Ala
257          565          570          575
260 Val Arg Pro Ser Glu Asn Phe Glu Thr Asn Asp Tyr Ala Ile Arg Ala
261          580          585          590
264 Gly Val Ser Glu Ser Ser Val Asp Glu Thr Thr Val Glu Met Ser Val
265          595          600          605
268 Ala Asp Met Leu Lys Glu Ala Ser Val Lys Ile Leu Ala Ala Gly Val
269          610          615          620
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284 Arg Met Asp Ala Arg Thr Ala Glu Asn Ile Val Ser Lys Trp Gln Lys
285          675          680          685
288 Ile Lys Ser Leu Ala Phe Gly Pro Asp His Arg Ile Glu Met Leu Pro
289          690          695          700
292 Glu Val Leu Asp Gly Arg Met Leu Lys Ile Trp Thr Asp Arg Ala Ala
293 705          710          715          720
296 Glu Thr Ala Gln Leu Gly Leu Val Tyr Asp Tyr Thr Leu Leu Lys Leu
297          725          730          735
300 Ser Val Asp Ser Val Thr Val Ser Ala Asp Gly Thr Arg Ala Leu Val
301          740          745          750
304 Glu Ala Thr Leu Glu Glu Ser Ala Cys Leu Ser Asp Leu Val His Pro
305          755          760          765
308 Glu Asn Asn Ala Thr Asp Val Arg Thr Tyr Thr Thr Arg Tyr Glu Val
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312 Phe Trp Ser Lys Ser Gly Trp Lys Ile Thr Glu Gly Ser Val Leu Ala
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320 &lt;210&gt; SEQ ID NO: 3

321 &lt;211&gt; LENGTH: 3667

322 &lt;212&gt; TYPE: DNA

323 &lt;213&gt; ORGANISM: Arabidopsis thaliana

325 &lt;400&gt; SEQUENCE: 3

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330 aattttacac atttcagttg gatgttaaga aaagagaggg aattgatggg gttttgtggg      180
332 tttaaacttt aaagtagtca agaattaagt cattggttta ctgttgctct atatgtgtaa      240
334 aatgaaggca actccaacgg ttcttaggtg gaatagatta tttagacgat ttaacatcat      300
336 aaagtccgtg gcgactgtaa catcatagat tgttttttat ttttttcagt agctgggtgat      360
338 gttttttgat ttaacttata ctactcaaaa tcaaaattcc ataaacccta gacgaccaa      420
340 cagtctcttc aatatgtaaa acagaacaaa gttttttag tagcctaaaa agacactccc      480
342 atggaagctc tgagtcacgt cggcattggg ctctcccat tccaattatg ccgattacca      540
344 ccggcgacga caaagctccg acgtagccac aacacctcta caactatctg ctccgccagc      600
346 aaatgggccc accgtcttct ctccgacttc aatttcacct ccgattcctc ctctcctcc      660
348 ttcgccaccg ccaccaccac cgccactctc gtctctctgc caccatctat tgatcgctcc      720
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RAW SEQUENCE LISTING ERROR SUMMARY      DATE: 08/20/2005  
PATENT APPLICATION: US/10/600,070B      TIME: 11:20:11

Input Set : A:\08153.ST25.txt  
Output Set: N:\CRF4\08202005\J600070B.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:132; N Pos. 127,520,541  
Seq#:140; N Pos. 113  
Seq#:144; N Pos. 144,301  
Seq#:146; N Pos. 11,12,14,65,88  
Seq#:147; N Pos. 13,516  
Seq#:174; N Pos. 22,451,471,483,484,487,489,490  
Seq#:175; N Pos. 528,536,540  
Seq#:182; N Pos. 6,16  
Seq#:184; N Pos. 21  
Seq#:198; N Pos. 608,656  
Seq#:199; N Pos. 646  
Seq#:201; N Pos. 609  
Seq#:207; Xaa Pos. 2,3,5,7

## VERIFICATION SUMMARY

DATE: 08/20/2005

PATENT APPLICATION: US/10/600,070B

TIME: 11:20:11

Input Set : A:\08153.ST25.txt

Output Set: N:\CRF4\08202005\J600070B.raw

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L:7840 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:132 after pos.:120  
M:341 Repeated in SeqNo=132  
L:8026 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:140 after pos.:60  
L:8125 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:144 after pos.:120  
M:341 Repeated in SeqNo=144  
L:8186 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:146 after pos.:0  
M:341 Repeated in SeqNo=146  
L:8226 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:147 after pos.:0  
M:341 Repeated in SeqNo=147  
L:11286 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:174 after pos.:0  
M:341 Repeated in SeqNo=174  
L:11343 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:175 after pos.:480  
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L:11559 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:184 after pos.:0  
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L:13291 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:199 after pos.:600  
L:13359 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:201 after pos.:600  
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